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FAA expands next generation of aviation technology in Alaska

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JUNEAU, Alaska — As a volunteer with the Civil Air Patrol, Jeff DeFreest has learned to appreciate the state-of-the-art satellite-based navigational equipment recently installed in the squadron's DeHavilland Beaver.

Its display screens helped guide him through rugged terrain, fast scuttling rainclouds and helicopter traffic in a search for a man overboard near Juneau last year.

But as much as he likes the new safety tools, he's not ready to take out a loan - even a low interest one - to put the same equipment in his own 1952 Cessna 170.

"I'm a fair weather flier," said DeFreest. "I'd have to see what's being offered, but it just doesn't seem that exciting to go into grand debt."

It may be tough convincing general aviation pilots, like DeFreest, to invest in new equipment that may cost half of what their planes are worth, but state officials say they are going to try. They say the safety payoff will be enormous.

Alaska has been the proving grounds for a GPS-based system that was originally dubbed Capstone Safety Project and is now referred to as **ADS-B** for Automatic Dependent Surveillance-Broadcast.

ADS-B is being developed internationally to replace radar as the world's primary method of air traffic control, but it was first tested in commercial air carriers in southwest Alaska in an effort to address the state's abysmal safety record.

In the Yukon-Kuskowkim Delta, it contributed to a 47 percent decline in the accident rate, according to the Federal Aviation Administration. The program was then tested successfully in southeast Alaska.

Now the FAA is proposing to expand the technology statewide in advance of its national deployment by the year 2020.

Federal officials, however, want to be sure there's enough interest to justify spending nearly $500 million to build and maintain the necessary ground infrastructure across Alaska.

"The key is they are looking to have 4,000 aircraft in Alaska equipped with the technology so that it would be cost beneficial to build out the infrastructure," said state Department of Transportation Deputy Commissioner Frank Richards.

Those 4,000 aircraft, of which the largest portion by far are general aviation - or private airplanes, represent about 90 percent of total flight time in the state, he said.

Currently, just over 400 airplanes are equipped with **ADS-B**, and most are commercial.

In a memorandum of agreement signed by the FAA and air groups last August, the aviation community agreed to seek $34 million from the state to equip planes in five years, as well as $11 million in private funding from individual aircraft owners and operators.

So far state lawmakers have approved setting up a $4.8 million revolving loan fund to dole out low interest loans for private pilots and commercial carriers to purchase the avionics.

Though the regulations are still under review, the plan is to offer the loans at 4 percent interest with $2,500 down. Depending on the size of the airplane and

sophistication of the equipment, the total package could cost anywhere from $8,000 to $30,000 but, at an average cost of $15,000, a 10-year loan would require monthly payments of about $122, said state officials.

"It's still expensive for the average general aviation pilot. And like any new technology, you're penalized for equipping first," said Alaska Airmen's Association executive director Dee Hanson, who points out that prices will likely stay high until demand grows nationwide.

Hanson said the loan program is important because it demonstrates the state's commitment to **ADS-B**, but it works best for commercial operators who can write off their investment. Along with safety enhancements, the technology also allows them to operate more efficiently and thus save on fuel costs.

While interest is high among private pilots, a member survey showed most were willing to spend about $2,500 tops on new equipment. That's why the association supports a grant program to serve as an incentive for "early equippers," she said.

"It's not just about equipping private aircraft, it's about making Alaska's number one transportation system safer," said Hanson. "The program is only as good as the number of aircraft equipped. If you just equip the commercial operators, what about that G-A guy that's flying around in the same airspace that can't be seen?"

An aircraft equipped with **ADS-B** receives GPS signals through an onboard receiver to determine its position in the sky. That information, along with data on the plane's identity, position, speed and intended flight path, is broadcast to ground stations and other aircraft equipped with **ADS-B** within 150 miles.

Multifunction display screens built into the instrument panel also provide pilots with real-time weather information, terrain maps and flight information.

Its implementation would put Alaska on the forefront of a national buildout expected to be completed over the next decade at an estimated cost of between $30 billion to $40 billion.

"It's basically the next quantum leap in air traffic control from flags to bonfires to radio signals to radar to satellites. So it's a huge deal," said FAA spokesman Paul Takemoto.

It would represent more than a quantum leap in Alaska where radar is nonexistent in most parts of the state, and rough terrain, harsh unpredictable weather and the dearth of ground-based navigational aids contribute to a sorry air safety record.

Alaska has the highest number of pilots per capita of any state - six times the number in the Lower 48. It also has the highest accident rates in the nation - routinely two to four times higher than the national average.

Yet air transportation is essential in a state that's bigger than Texas, California and Montana combined but has only ten percent of its area accessible by road.

The FAA is already building ground stations between Anchorage and Fairbanks and will move onto Nome and Kotzebue by the end of 2009. By then they want to see 1,325 planes equipped before moving on to the next phase that will include Homer, Kodiak and other Gulf of Alaska communities.

Will Johnson, owner and operator of Yute Air Taxi in Bethel, has two planes equipped with **ADS-B**. He's been a longtime promoter of the technology, which he says provides pilots with powerful new tools.

"I have great hopes that we will continue the program and learn from what we saw here in how dramatically it cut the accident rate," said Johnson. "Nothing is 100 percent perfect or 100 percent safe but we try to stack the odds in our favor as best we can, and that's what Capstone does for us."